Rocks and Minerals

42 **A Magazine for Mineralogists, Geologists and Collectors**

Official Journal of the Rocks and Minerals Association

January, 1942

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THE ROCKS AND MINERALS ASSOCIATION

(Members All Over the World)

Organized in 1928 for the increase and dissemination of mineralogic knowledge

To stimulate public interest in geology and mineralogy and to endeavor to have courses in these subjects introduced in the curricula of the public school systems; to revive a general interest in minerals and mineral collecting; to instruct beginners as to how a collection can be made and cared for; to keep an accurate and permanent record of all mineral localities and minerals found there and to print same for distribution; to encourage the search for new minerals that have not yet been discovered; and to endeavor to secure the practical conservation of mineral localities and unusual rock formations.

Ever since its foundation in 1928, the Rocks and Minerals Association has done much to promote the interest in mineralogy. It has sponsored outings, expeditions, formations of mineralogical clubs and the printing of many articles that have been a distinct contribution to mineralogy.

Those of our readers who are members of the Association can rightly feel that they too were sponsors of these many achievements that have helped to give mineralogy a national recognition. Among your friends there must be many who would like to have a part in the Association's work—to share with you the personal satisfaction, the pleasure, and the benefits of membership. Will you give your friends this opportunity to join the Association by nominating them for membership?

Each new member helps to extend the Association's activities—helps to make your magazine larger, better, and more interesting, and above all assists in the dissemination of mineralogical knowledge.

Some advantages of memberships: All members in good standing receive:

(1) **Rocks and Minerals,** a monthly magazine. (2) A member's identification card that secures the privileges of many mines, quarries, clubs, societies, museums, libraries. (3) The right to participate in outings and meetings arranged by the Association. (4) the right to display a certificate of membership and to place after their names a designation indicating their membership or to advertise membership on stationery, etc. (5) The distinction and the endorsement which comes from membership in the world's largest mineralogical society.

Mineralogical clubs which subscribe for **Rocks and Minerals** also become affiliated members of the Rocks and Minerals Association and enjoy all the advantages which such an affiliation affords.

A number of clubs hold membership in the Association, participate in the annual outings, and co-operate in many ways in furthering the aims and ambitions of the Association.

Affiliation with the world's largest mineralogical society cannot fail to increase membership, enlarge circles of acquaintanceship, and stimulate a keener interest in mineralogy.

A list of affiliated clubs will be found among the back pages of the magazine.

ROCKS and MINERALS

PUBLISHED MONTHLY

Edited and Published by PETER ZODAC

January 1942

Contents for January, 1942

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ROCKS and MINERALS PEEKSKILL, N. Y., U. S. A.

The Official Journal of the Rocks and Minerals Association

Chips From The Quarry

U. S. NEEDS SCIENTISTS

Our country is in need of scientifically trained men and women for defense work. It is a pleasure and a privilege to release our editorial space so that the following announcement may appear.

In an effort to meet the increasing needs of the defense program for scientifically trained men and women, the Federal Civil Service Commission has reannounced, with modified requirements, three of its examinations for scientists. The reannounced examinations are those for Physicist, Explosives Chemist, and Chemical Engineer positions, with salaries in each field ranging from $2,600 to $5,600 a year. For all, appropriate college study and experience are required.

In the field of physics, there is great demand for physicists well qualified in stress analysis, ballistics, elasticity, vibration studies, vacuum-tube circuits, and short radio waves. Provision is made in the new announcement for accepting applications for the assistant grade positions ($2,600 a year) from applicants who wish to qualify on college teaching unaccompanied by research.

In chemical engineering the Commission has adequate employment lists in some branches. However, there is a shortage of qualified people in plant layout, equipment design, market analysis, chemical economics, heavy chemicals, plastics, rubber, agricultural by-products, and strategic minerals. Applicants may now substitute college teaching in chemical engineering or chemistry for part of the prescribed experience.

Over 100 Explosives Chemists are needed. In this examination the term "explosives chemistry" is interpreted to mean "research, developmental or production work on explosives, or materials

which require for their preparation and handling, methods, techniques, and precautionary measures similar to those used for explosives". There is no longer a "recency" clause in the announcement, and an applicant's experience may therefore have been gained at any time.

For all of these examinations the age limit has been raised to 60 years, for regular probational appointment. Provision is also made for the waiver of age and physical requirements for temporary positions connected with the defense program. The announcements and application forms may be obtained at any first- or second-class post office or from the Civil Service Commission in Washington, D. C. Applications may be filed until further notice but qualified persons are urged to apply at once.

Peter Zodac

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SOME GEOLOGICAL NOTES ON TRINIDAD, COLORADO

By EARL FLOYD

Trinidad, in the southwestern part of Las Animas County, is the coal mining center of southern Colorado. It has a population of 14,000 (this does not include the nearby mining camps) and is situated on the old Santa Fe Trail and U. S. Highways 85 and 87; it is 16 miles north of the Colorado-New Mexico state line. The city is surrounded on three sides by high cliffs; to the west is Prospect Point, to the north is Simpson's Rest, to the south lies Fisher's Peak, while to the east the valley opens out onto the rough rolling plains covered with mesas and hogback dikes.

The coal mines are located in the side canyons which flow into the main canyons. Each mine has a camp with stores, garages, and houses for the miners.

The Purgatoire River (river of lost souls) heads in the Sangre de Cristo Range (the blood of Christ), 60 miles west of Trinidad, and flows through the city. The peaks of the range tower 12,000 to 14,000 feet above sea level and are covered with snow the year round; the range is locally called, the "Snowy Range". The melting snow furnishes the city with good soft water for domestic use. These mountains are the east range of the Rocky Mountain system. There is no east and west highways across this range west of Trinidad.

Sedimentary Rocks Predominate

The formations in this watershed consist of sandstone, shale, and coal. Going up the river and getting close to the range, we find that the stratified formations have been turned up on edge; the soft seams have eroded away leaving the hard veins of the Dakota sandstone forming giant walls running north and south. These walls are cut through by canyons running east from the range and these cut-out areas form ideal places for summer tourists who wish to get away from the heat of the plains country; fishing for mountain trout in the streams and lakes in back of these walls is very good.

Dikes

Thirty miles northwest of Trinidad rises the Spanish Peaks (two of them) which are 20 miles east of the Sangre de Cristo Range. The east peak is 12,000 and the west peak, 14,000 feet above sea level. This country is called "The Land of the Huajatolla" (breasts of the world). These two peaks are of a later uplift than the main range. The west peak forms a hub of a dike system which looks like the spokes of a wheel; porphyry dikes stretch out in all directions, as far as the eye can see. This volcanic rock, being harder than the shales and sandstones, did not erode away as fast but left giant walls of 100 feet or more in height, 10 to 20 feet thick, and forming giant stair steps down the mountainside. These dikes cut through the walls of the hard formations which have been turned up on edge. There are older basalt dikes which run east of the range which are not as hard and which are cut by the

Spanish Peak porphyry dikes. The old basalt dikes do not always come to the surface as we will see later.

Formations in Immediate Vicinity of Trinidad

The formations in the immediate vicinity of Trinidad are practically level with a slight rise to the west. Starting at the river bed we find layers of shale and sandstone cropping out as we leave the river on both sides, getting steeper until we reach the Trinidad sandstone. This sandstone forms sheer cliffs or rimrocks, 100 feet thick; above the sandstone are more shale, sandstone, and the coal measures. There are three of these coal measures each containing several coal veins. These veins and coal measures are separated by layers of sandstone and shale varying in thickness from a few inches to several feet. Climbing up the front of Fisher's Peak, we leave the shale and coal about two-thirds of the way up. From here on we find the sandstone. Next we come to the Malapi volcanic rock. This rises straight up 300 or 400 feet high. The Malapi lava forms the top of the Peak and all of the mesas which extend to the east and south for many miles. The top of the Peak and all of the mesas in this part of the country were once the bottoms of canyons and when the eruption of Mt. Capulin occurred, the lava filled the canyons. The stratified formations eroded away leaving the high mesas with a hard vertical caprock of lava, black in color and solid, locally called "nigger-head rock."

The author, Earl Floyd, spots an interesting rock formation near Trinidad. Note dike in background.

This region has always been of interest to men who were looking for formations in which diamonds are found. We have here the carbon and the volcanic rock coming in contact. This dike material cutting the coal measures was not in a fluid state when hot. Instead this magma was in a putty form, not burning the coal but just coking it several feet on either side of the dikes.

Jeffries Coal Mine

The Jeffries Coal Mine is 3 miles south of Trinidad on Raton Pass, U. S. Highways 85 and 87. They are working the No. 5 vein in the lower series of coal. This series is just above the Trinidad sandstone and has five veins of coal, all of which are from 4 to 7 feet thick. This mine is worked by the double entry system with the main entry or haulage road and the manway or air course running parallel into the mine. Going into the main slope 300 feet, we come to one of the basalt dikes which did not reach the surface. Here the entry turned to the left at a 45° angle and followed the dike which forms the right hand wall of the entry. The manway was driven on the right side of the dike, using the dike as a chain piller. This dike is 4 or 5 feet thick and has cut through all the formations up to the sandstone just over the coal. This sandstone did not crack with the rest of the formations below, so when the basaltic material pushed up through the crack, it came against the sandstone, lifting and bending it; the lava flowed out over the top of the coal forming a mushroom top, coking the upper layer of the coal in this vein. This basalt brought up with it manganese iron which ran down the slips in the coke and giving it many beautiful iridescent colors. This colored coke is found only in this one location. (There

are several mines nearby which produce native coke but as there was no manganese iron in it the coke does not have the beautiful coloring). The basalt forms a good roof over the entry so no timbering is needed. This coke has no commercial value although it will burn but it makes very beautiful specimens for collectors. The coke which has manganese iron in it, will, when heated, pop like popcorn. If some of the coke is mixed with coal and put in a forge, it will pop as the heat comes to it and throw the fire out on the floor.

Pierre Shale

The geological formations surrounding Trinidad are of the Cretaceous period. The shale below the Trinidad sandstone is Pierre shale of a blue black color, when in place, after being exposed to the weather, air slacks and turns it to a dirty gray color. This shale breaks out in square-shaped blocks varying in size from a grain of sand to a foot across. This shale contains no carbon or vegetable matter but a variety of fossils are found in it varying in size. Some of these fossils are filled with a hard, fine grained slate, and along the top, just under the shell of a fossil, we sometimes find a poor quality of Iceland spar (calcite). Some of the fossil shells are brachiopods which contain slate with small streaks of arsenopyrite. The shale, when ground fine and mixed with water to a very stiff paste, molded, not pressed, into bricks (there being a trace of aluminum in it), makes a very good, dark brown or black, depending on how hard they are burned, paving and building brick.

Trinidad Sandstone

The Trinidad sandstone is a fine grained white formation with no cleavage, breaks in any direction thus making good building material for houses, retaining walls, and bridges. When the coal mining companies drill for coal and reach the Trinidad sandstone, they stop drilling as they know there is no coal below it. The other sandstone formations in this region are coarse grained and vary in color from a light gray to a deep red with soft and hard veins running through them with joints running parallel with the veins.

Petrified Wood

Petrified wood occurs south of Trinidad. This is not of the agate or jasperized variety; it is filled with hard

A view of Trinidad, Colo., (looking South) with Fisher's Peak in background.

shale but has very good form. In some pieces of the wood, holes, similar to worm holes, are present in it filled at times with a soft material like worm dust in wood.

Bituminous Coal

The coal of the region is bituminous, heavy and hard to mine and to clean. It makes lots of dust and with the gas that comes out of the coal makes frequent explosions if the miners are not very careful. The coal, after being washed and burned in beehive ovens, makes a very hard coke which is a good fuel for smelting heavy ores, for steel mills, foundries, etc. It also is a good steam coal. Quite a large number of by-products could be obtained from this coal. There has been enough gas and other by-products burned up in the beehive ovens of this district to supply the country for several years. The coke is all that is saved. In some of the mines we find what the miners call "sulphur balls." These balls vary in size from that of a marble up to a foot in diameter, are very tough and heavy making good weight when loaded with the coal. They are black like coal and are about one-third white arsenopyrite which poisons the water and gives off a garlic odor, called stink gas by the miners.

Oil Shale

The shale between the coal veins is a black variety and contains carbon; it will burn making a very high ash. The shale on top of the coal and under the sandstone is a black variety of oil shale with no joints. This shale, after being hauled out on the dump, often catches fire from spontaneous combustion and burns. The heat turns the shale red, running the particles together, and the County uses this dump material for surfacing road and driveways.

Limestone

Fifty feet below the Trinidad sandstone there is a vein of limestone six to eight inches thick; this band is an aragonite cone-in-cone formation. It is so colored by shale as to escape notice unless one was looking for it. Its form is good but the color is poor.

The water which comes out of the mines in this part of the country carries a large amount of alkali and during a dry season the gravel bars and banks of the river are covered with a coating of the alkali which looks like snow.

Adobe Soil

The sandstone decomposes into quicksand which when pure is treacherous but when mixed with decomposed shale forms the adobe soil. Adobe soil is solid and very productive if it can be irrigated. Adobe soil when mixed with straw and water makes adobe brick which when dried and baked in the sun produces a very good building material that will last

Monument Lake with Spanish Peaks in background.

indefinitely if it can be protected from the rain.

Arroyas

The water that drains off the side hills and runs across the valleys with an adobe floor cuts deep arroyas down through the adobe soil to the shale or sandstone. (All small streams are called arroyas). Arroyas vary from a few feet in width, which one can jump across, to 15 or 20 feet, depending upon the amount of flood water coming down. The walls stand vertically and are as deep as the soil which in some places is from 10 to 20 feet thick. In places these arroyas are hard to cross on foot and if one does not know the country it may be difficult to cross them It is not always wise to park a car just anywhere along a road with the intention of inspecting a side hill cut a short distance away; you may find yourself confronted by several deep arroyas which you cannot cross but if you manage to get down into one of them you may have to travel some distance before you can get out of it. Some of the early wagon roads, before bridges were built, would go down into the arroyas and follow them for some distance, often a half mile or more. Floods often caught the early settlers in these places with disastrous results as the water would come down with a rush, rising up to 8 or 10 feet; the settlers would drown as it was impossible to climb the smooth vertical walls of the arroyas.

Helium Wells

One of the richest helium wells in the United States was drilled at Thatcher, about 50 miles northeast of Trinidad, on the old Santa Fe Trail (Highway 350). This well produces 11% of helium gas. In the red sandstone beds east of this well are several others which also produce a substantial amount of helium. Since the United States will not permit export of helium and the demand in this country is very small compared to the supply, the plant at Thatcher has been closed down.

CASSITERITE OF THE CAROLINAS

R. J. HOLDEN

Your item in December, 1941, ROCKS AND MINERALS, on the tin deposits in North and South Carolina, recalls certain experiences which might interest your readers.

During World War No. 1 I was commissioned to look into the commercial possibilities of the Carolina tin deposits. Several mines were in operation at the time and I had opportunities for observation which may not be available at the present time.

Mining as carried on at that time was hardly a commercial success. An amusing situation was an operation which was being carried on under a lease which called for continuous operation. The operator's interpretation put on the word continuous differed somewhat from the usual meaning. Two men were working one-half day at a time about once in three weeks. The waters of the creek had been led through a sluice box with riffles. The cassiterite in dirt was carried on a wheel-barrow and dumped in to the sluice box. The water carried away the dirt and left the cassiterite on the riffles. At the end of the half day's work the cassiterite was gathered up from the riffles, put in a bag and carried away on the back of one of the operators.

At another point a weathered pegmatite was being operated with a steam-shovel. The cassiterite was in such fine particles that it could hardly be found with a microsocpe, yet the chemist was able to find 1½ lbs. per ton. There was an elaborate milling equipment, which recovered ¾ of a lb. per ton. The final treatment was to run the tails over a fuzzy cloth, which seemed to catch some of the fine particles which had passed the milling machinery.

SIXTH YEAR AT TILLY FOSTER

By JOHN N. TRAINER

It is the middle of November 1941. The season is over. This is the diary of a sixth year of collecting minerals at Tilly Foster.

A piece of syenite-gneiss weighing about forty pounds had been set up on a large rock by some kind person who did not realize what a collector's bonanza it was. It contained thomsonite, natrolite, apophyllite, calcite, titanite, laumontite, autunite and two other as yet unidentified fluorescent minerals. On the first day I found it, I broke off a piece showing thomsonite and titanite and the following week-end broke off another and found apophyllite and calcite. On the third week-end I broke up the entire piece and took it all home and then discovered that I had laumontite and natrolite and the three fluorescent minerals.

The thomsonite is in good radiating groups of crystals and is new to Tilly Foster.

The natrolite, also new to Tilly Foster, is in slender crystals about a quarter of an inch long, lying flat and criss-crossed on one of the plane surfaces of the mass. It was probably in a vein originally and was partly covered by a fungus growth.

The titanite crystals, about twenty-five of them, are disseminated through the mass and are of good color and crystallization but are small, the largest being a half inch long. Titanite is seldom found on the dumps today. The apophyllite is in well formed crystals in cavities and the calcite is in hexagonal crystals.

The autunite could not be fully tested because the specimens are so small but it shows the characteristic yellow scales and has the usual fluorescence. This is my first find of the mineral. It was reported six years ago and I have been looking for it ever since.

The other two fluorescent minerals in the "bonanza" rock, not yet identified, are pink which fluoresces orange and white which fluoresces a creamy color.

So much for that forty pound piece of gneiss. The summer would have been barren without it.

One day, by way of exercise, I swung my hammer on a weathered ugly-duckling piece of syenite-gneiss, size about three by six inches, with nothing on its surface to indicate that it contained anything interesting. It split quite easily along a vein and the two faces which were exposed were covered with very pretty lavender blue crocidolite or blue asbestos, fibrous and matted. Visions of Griqualand-West, Africa and Cochambamba, Bolivia!! Dana mentions two localities in this country where this mineral is found; Manchester, in *The Minerals of New York and Environs,* mentions four but two with question marks. Palache, in his monograph on the minerals of Franklin, New Jersey, describes crocidolite from that locality as it might be described from Tilly Foster. I am told that it has been found recently in a number of new places in this country and abroad and that it is not as scarce as commonly supposed. It is new to Tilly Foster.

On three sides of a two by four inch piece of calcite found last summer is muscovite which parts in lath-like rectangles and shows all stages of alteration to serpentine. It may have a bearing on the old question of whether serpentine after periclase (?), originally called "cubic antigorite", is actually after periclase. Crushed clinochlore develops the same parting as muscovite as is shown in other specimens of both minerals in my collection. One specimen shows green clinochlore at the centre of white serpentine which is in the cubic parted form of clinochlore; in this case the alteration is not complete. Another specimen shows both serpentine after hexagonal clinochlore crystals and serpentine in the lath-like rectangular forms which I believe are after parted clinochlore because of their proximity and also because unaltered clinochlore may be seen in the same specimen. The question is whether the clean cut "cubic antigorite" or serpentine after periclase

(?) found at Tilly Foster and now in many museums and private collections is really after parted clinochlore (or mica). It is a logical possibility because there is so much serpentine and clinochlore at Tilly Foster.

In addition to the minerals mentioned above I found last Summer the following; a small green apatite crystal, better specimens of stilbite and heulandite, the varieties of serpentine commonly called "Williamsite" and "Antigorite", a three by four inch piece of rich chalcopyrite mixed with pyrrhotite and coated with malachite, yellow apophyllite, green dolomite, smoky and hematite-coated quartz, calcite in veins with chrysotile marked like the latter but not a pseudomorph, globular and blue stalactitic calcite and some additional pieces worth adding to the collection. It was the first Summer that I failed to find a pseudomorph of any kind.

I have been asked what fluorescent material there is at Tilly Foster. The answer is very little. Under a G. E. black bulb the autunite reacts characteristically. A gray colloidal serpentine turns green but this may be from a coating of another mineral. Encrusted white opal turns blue. Brown calcite turns pale green but no other calcites react. None of my twelve fluorite specimens, purple, lemon yellow, orange, white and colorless, fluoresce.

An unidentified flesh colored amorphous mineral associated with aragonite, having some of the properties of stevensite, fluoresces a creamy yellow. It was the last find of the season and requires further study.

In the "round-up" this Fall, I added thirty-two specimens to my Tilly Foster collection or a little over half the number added in 1940. I put in less time this year and the law of diminishing returns is still on the job.

The thomsonite, natrolite and crocidolite bring the total Tilly Foster species up to sixty-two of which I have fifty-seven. I have thrown kaolin and the same after serpentine out of my "official" list because an X-ray test proved it to be serpentine. I still lack humite, clinohumite, chrysolite, hydromagnesite and marcasite.

The Boston and Bridgeport Mineral Clubs visited Tilly Foster last Summer and also some individuals including Mr. John Rosch who also has an article on Tilly Foster in this number of ROCKS AND MINERALS. For my purposes the locality is not exhausted and I hope to collect again next Summer.

EDITOR'S NOTE: This is the 5th article on the Tilly Foster Iron Mine, one of New York's great mineral localities, which Mr. Trainer has prepared for us. The others appeared in the Oct. 1938, Feb. 1939, April 1940 and April 1941 issues.

Classes in Mineralogy Conducted by Mrs. McLeod

To increase interest in mineralogy, Mrs. Edith McLeod, of Klamath Falls, Oregon, has organized and is teaching classes in mineralogy. The classes are held evenings in the science room of the Klamath Union High School, the project being sponsored by the Klamath Mineral Club.

The course offered is a three month's study in beginning mineralogy, determinations being made by physical properties and simple mechanical means, such as determinations by streak, hardness, specific gravity, luster, cleavage, structure, etc. Simple crystallography is also included. The minerals studied are those peculiar to southern Oregon, northern California and northwestern Nevada, minerals of strategic and economic importance, and the commoner minerals. Each student is furnished a dollar set of fifty minerals to work with and the text used is "Field Identification of Minerals" by Ray C. Thrasher, published by the State Department of Geology and Mineral Industries.

Enrollment and interest, especially among adults, has been gratifying and it is planned to start other classes after the Christmas holidays, and to continue the present classes with more advanced work, including simple chemical analysis.

Mrs. McLeod is a member of the Rocks and Minerals Association.

ICE SPRING IN CENTRAL UTAH

By W. T. ROGERS

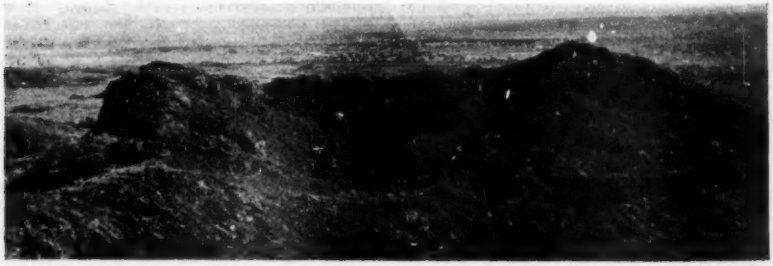
An article appeared in the December, 1940, issue of *Rocks and Minerals* on the subject of ice caves, I believe that readers of this magazine would be interested in knowing about an unusual ice spring located in Millard County, in Central Utah.

This spring is accessible from U. S. highway 91, south from Salt Lake City about 150 miles and 8 or 9 miles off the highway to the west of the town of Fillmore. A guide should be secured to take one to the spring as it is very difficult to find. The spring is situated in the north end of a very recent lava flow from the Ice Spring Crater. This is one of the youngest volcanic extrusions in the United States.

In a very recent geological time, that part of Utah known as the Great Basin, which is the western half of the State, was covered mostly by a large inland lake known as Lake Bonneville. This was described by Gilbert in his early work on Utah. Great Salt Lake and Sevier Lake are remnants on this large fresh water lake which drained north into Idaho and thence into the Columbia river via the Snake river.

During the time when Lake Bonneville existed, and before, there was a great amount of volcanic activity in central Utah. There are at least a dozen cones and volcanic necks within a radius of 30 miles of the Ice Spring Crater. The eruptive rocks range from rhyolite to basalt. The acidic rocks (rhyolite) are the oldest and the basic (basalt) the youngest. There are strata of volcanic ash and fine glass in the lake deposits, showing that active volcanism was present during the life of the lake. After Lake Bonneville had dried up, and possibly within the time of man in this region, the Ice Spring Crater erupted. It broke forth along a fault plane having a displacement of about 15 feet and a cone was built about 300 feet above the floor of the Desert. Remnants of four distinct craters are to be seen in this cone. The north wall of one of the craters failed and the lava flowed out about 2½ mile north, making a very rough and uneven surface. As the molten rock moved along, the top of it solidified and the movement of the liquid mass underneath caused the top part to break into great jagged rough pieces of scoria, forming ridges and basins.

At the north end of this flow, in one of the basins, there is a small seepage of water which freezes in the interstices of the rocks and stays frozen all summer. Thus the name Ice Spring. I visited the spring in August, 1932. The temperature in the shade of a large rock on the surface of the flow registered 115° F. Less than 100 feet away, back in the hollow of the spring, ice was found in large pieces and could be had by simply prying it away from the rock. The spring is in a cave-like depression and is not more that 3 to 5 feet from the surface of the flow. The temperature at the



Main Crater of the Ice Spring Volcanic Cone in Central Utah

spring registered 38° F. This is a tremendous difference of temperature in so short a distance.

The theory that ice is formed in the winter by melting snow percolating through the rocks and then freezing doesn't seem to satisfy all the facts. This type of rock is porous and full of holes caused from expanding gases and would make an excellent thermal insulator, but local people tell me that farmers regularly use the ice in the summer for making ice cream. When people go back for more, there is about the same amount of ice present as there was originally.

It is possible that the spring is situated in the vicinity of the fault zone which is now covered by the lava flow and escaping gas under pressure could come in contact with water circulating in the rocks and thus expanding absorb heat from its surroundings, causing the water to freeze. This, perhaps, could be proved or disproved by further investigation. The Ice Spring, nevertheless, is one of nature's very interesting phenomena.

MANGANESE DEPOSITS IN THE NEVADA DISTRICT, NEAR ELY, NEVADA

The manganese deposits of the Nevada district, 10 miles southeast of Ely, Nev., have been studied by Ralph J. Roberts, assisted by John M. Nelson, of the Geological Survey, United States Department of the Interior, as part of the Government's investigations of domestic deposits of strategic minerals. The deposits lie in the western foothills of the Schell Creek Range and are accessible by dirt roads from U. S. Highway 6, which passes 3 miles west of the district. They occur in limestone and are distributed through an area a thousand feet wide and half a mile long.

The recorded production of the Nevada district from 1917 to 1938 is 15,814 tons, of which 11,077 tons contained more than 35 percent of manganese and the remaining 4,737 tons between 26 and 35 percent. The ore shipped contained 5 to 21 percent of silica, 2 to 8 percent of iron, and 0.01 to 0.50 percent of phosphorous. The zinc content ranged from a trace to 0.66 percent; sulphur, lead, copper, and alumina were low. Tests have shown that the ore can be concentrated to battery grade (70 percent of manganese dioxide), but so much lime is present that part of it would have to be removed.

The manganese ore bodies are tabular, podlike, or irregular in shape. Most of them extend along fault zones, but some extend into the adjacent limestone, which they have partially replaced for some distance from the faults. Individual bodies have yielded from a few tons to several thousand tons of ore. The ore consists of the manganese oxides pyrolusite, psilomelane, and wad, which were probably formed by the oxidation of the manganese carbonate rhodochrosite. Oxidation is complete to a depth of 170 feet.

The ore remaining in stopes and found by diamond drilling indicates reserves estimated at 15,000 tons containing 30 percent or more of manganese. It is estimated that 5,000 tons of ore containing between 10 and 30 percent of manganese remain in the stopes, pits, and on the dumps, and, in addition, 10,000 tons of 30 percent ore may lie in unexplored ground.

MINERALS REPORTED FROM ANTARCTICA

DUNCAN STEWART, JR.

Lehigh University

Since 1895 some 72 articles have been published on the petrography of the rocks of Antarctica and its islands. The results embodied in these papers, which range from brief descriptions to memoirs, indicate that a variety of minerals has been reported. The descriptions are found in scattered periodicals and in the scientific reports of expeditions to the Antarctic from the United States, England, Scotland, Sweden, Norway, Belgium, Germany, France, Australia, New Zealand, and Japan.

The following is a list of minerals reported, many of which are only to be noted after a careful examination under the polarizing microscope, or their presence indicated by chemical analysis, as in the case of the first reported gold from the southern land-mass.

Elements
- Gold
- Graphite
- Silver
- Sulphur

Sulphides, etc.
- Arsenopyrite
- Bornite
- Chalcopyrite
- Galena
- Molybdenite
- Pyrite
- Pyrrhotite
- Sphalerite
- Stibnite
- Tetrahedrite

Halides
- Atacamite
- Fluorite

Oxides
- Brookite
- Brucite
- Corundum
- Hematite
- Ilmenite
- Limonite

Quartz Group
- Crystalline quartz
- Cryptocrystalline quartz
- Chalcedony
- Chert

Rutile Group
- Cassiterite
- Rutile
- Zircon

Spinel Group
- Ceylonite
- Chromite
- Magnetite
- Picotite

Tridymite

Carbonates
- Azurite

Calcite Group
- Calcite
- Dolomite
- Siderite

Malachite

Sulphates, etc.
- Ferrimolybdite
- Gypsum
- Mirabilite

Phosphates, etc.
- Apatite
- Brushite (?)
- Monazite
- Newberyite (?)
- Redonite
- Stercorite
- Xenotimite

Silicates

Amphibole Group
- Actinolite
- Anthophyllite
- Cummingtonite
- Glaucophane
- Hornblende
  - Barkevikite
  - Basaltic
  - Edenite
  - Green Hornblende
- Riebeckite
- Tremolite

Andalusite
Apophyllite
Beryl

Chlorite Group
- Antigorite
  - Bastite
- Clinochlorite
- Delessite
- Iddingsite
- Penninite
- Prochlorite

Chloritoid
Chondrodite
Chrysotilite
Clinohumite (?)
Cordierite
Cossyrite
Dumortierite

Epidote Group
- Allanite
- Clinozoisite
- Pistacite
- Zoisite

Feldspar Group
- Albite
  - Analbite (?)
- Andesine
- Anorthite
- Anorthoclase
- Bytownite
- Labradorite
- Microcline

Feldspar Group Contd:
- Oligoclase
- Orthoclase

Garnet
- Almandite

Glauconite
Kaolinite
Kornerupite
Kyanite
Lawsonite

Leucite Group
- Analcime
- Leucite

Leucoxene

Mica Group
- Anomite
- Biotite
- Muscovite
  - Sericite
- Paragonite (?)
- Phlogopite

Nephelite
Olivine
- Forsterite

Pinite
Prehnite

Pyroxene Group
- Acmite
- Aegirinaugite
- Augite
  - Diallage
  - Enstatite-augite
  - Titaniferous augite
- Clinoenstatite
- Diopside
  - Chrome diopside
- Enstatite
  - Bronzite
- Hypersthene
- Pigeonite
- Salite

Scapolite
- Mizzonite

Sillimanite
Sphene
Talc
Topaz
Tourmaline
Vesuvianite
Wollastonite

Zeolite Group
- Heulandite
- Mesolite
- Natrolite
- Scolecite
- Stilbite
- Thomsonite

EDITOR'S NOTE: We are delighted to print this long and very interesting list of minerals that have been found around the South Pole. We do hope that Dr. Stewart will prepare for us another and a longer article on the minerals or their occurrences of this region which has been made famous by the expeditions of Admiral Byrd.

BURIED ALIVE

By ERIC L. ARMSTRONG
Cert. Mine Manager

I take it that everyone has given thought to the possibility of being buried at some future time.

And I make two guesses: "That they desire to postpone the event as long as is possible"; "That when it takes place they do not wish to be conscious of the proceedings".

Were one to wake up, and hear the clump of clods falling on the casket, what would be the thoughts of anyone unfortunate to experience such interment?

Many will ask: " Is such thing possible, right here in our glorious land?" The answer is: "It is an every day occurence".

Men are being buried alive daily, in gravel-pits, in sandholes, in grain elevators, and in the mines. I am one who has endured this experience, and lived to relate it.

For over forty years I have been a miner, mostly in coal mines. I hold certificates as "Manager & Under-manager" from several coal producing countries in which I have worked. For short periods I have held official positions, but most of my time has been at the coal-face. For personal reason, and having other pursuits, it suits me better to remain at the coal-face.

During my time in the mines, I have helped- rescue- several- men- who- were buried beneath falls of either coal or roof-rock. It is pleasant to record that we were able to cheat Death most times. It has happened that the wouldbe rescuers have been killed by secondary falls while at their gallant task of attempting to save a workmate. A second fall is possible at any moment, but we rarely think of it. Our concern is for our workmate. To us miners, such happenings are risks that have to be faced. Death does not appall us, and we do not give way to hysteria or superstitious fears. A man may be killed today. Tomorrow another man will be working in his place.

A Trapped Miner

To be shut in behind a fall is commonplace. I have been shut in several times. Most falls occur on the roadways, but are just as likely to happen at the face, and involve the men working there.

On one occasion I had been called to help free a man, buried by a fall at the face. When I got there, others had uncovered him, but he was a prisoner, his foot held fast between two large pieces of rock. I managed to get a hand in, unlaced his boot, and got his foot free. And just in time! For as we were carring him out, a second fall came down. A rock from this second fall gave me such a wallop on the rear department that it made sitting down for several days a trifle unpleasant. I have the idea his boot is still in the mine but we got our man which is all that matters

At another mine, while driving a roadway where the roof was exceptionally heavy, a bad fall occcured with a sudden collapse of the timbers. I was shut in against the face, my mate got knocked down and partly covered. He was lucky, for while receiving no great injury, he had good air to breathe next the floor. A feeder of gas was liberated by the fall, and polluted the air. For five long hours I endured partial suffocation; while men worked as miners ever will to try get us out. For several days after, my chest and lungs felt as if they were badly strained; due to the deficiency of oxygen while a prisoner behind the fall.

My Worst Experience

My worst experience of any happened on March 15th, 1939, while working at the "Drummond Mine", Westville, Nova Scotia, Canada.

The coal seam of this mine is a large one averaging sixteen feet in thickness. The upper part had been worked forty years previously, the lower part was then being won.

Where large areas had been extracted

in the first workings, the roof had crushed down and re-compacted by pressure, till it was almost as firm as if virgin work. There were places where pillars had been left in. These pillars prevented the roof from settling down and packing firmly. These were the danger spots. It required skill and care to work in such places. It was quite common to hear falls above timbers, and sometimes they would give way under a fall heavier than usual.

I had been working about two hours, taking down the dirt above the coal, so as to be able to get in another set of timbers. The road on which I was working followed the course of one that had been driven in the upper part of the seam, and the pillars had been left in. Some roof had fallen. It was the debris on the floor of the old road above that I was splitting, then catching on the new timbers so as to form a roof for the new roadway.

My mind,—(strange to say)—was occupied with thoughts of "Life, Death and the Future".

What prompted my thoughts was in having read of the death of the late Clarence Darrow, who is said to have been a lifelong agnostic.

I hold some radical opinions myself, but firmly believe there is a God, and that a future is before us. I believe that a man who does well here will do well "THERE", wherever that may be. I have read many scriptures, but find no better example of how to live so as to please God than in the Life of Jesus. I try to follow it, and leave disputations on religious matter ot others, and my future with my God.

Why—thought I—should one with the educational endowments of Clarence Darrow doubt the existence of God?

I moved so as to be better able to get at my work when - - - - - - - WHOOF!

A sudden bear-grip held me fast! I was in darkness! I could not breathe, felt my ribs breaking, expected the chest-wall to collapse! Strangely, I felt no pain.

I felt a second wad fall, and it carried away from me part of what covered my head. I saw my lamp—(electric headlamp)—it was still burning.

My mate, a young man with but little experience at the coal-face escaped with but a few bruises. He gallantly came across the fall to me, enquiring was I alive.

I requested he try to free my shoulders. He promptly tried to do so, then said: "I will get help".

Other roads were being driven parallel with the one I was driving, and connected every sixty feet by cross-cuts. My mate soon had the men from these placces with me. They waded in to dig the fallen rock from around me, careless of the possibility of a second fall.

One man, Seymour McKinnon, a great strong fellow, was on his knees, scratching away the rock with his hands to try to free my legs.

I requested him to take a pick, realizing he did not wish to risk giving me a stab with it. He reluctantly did so.

By this time pain had seized me, I suffered cruelly when breathing.

I sensed there were no heavy rocks holding my legs, so requested McKinnon to try to pull them up, as straight as possible, which might get me out the sooner.

He demurred, but I insisted. He gave a pull. Up came one foot, the other followed easily. I was free!

The gallant fellows chaired me back to a safe spot and improvised a seat while awaiting the arrival of the stretcher.

The overman had heard of the mishap, and came along promptly so it is but right I pay tribute to his noble nature.

He came across the fall, stood as near as possible, and tried to support my shoulders.

I saw he exposed himself needlessly and said to him, in the off-hand way we greet each other: "Get to blazes out of here, Bob. No need for every one to get killed".

He replied to me: "I hate to see a good man boxed up like this, and thought I might give you a bit of comfort".

He is to be given credit for being a

"MAN," as all miners are when a fellow man is in peril.

The stretcher came. The men carried me down a long incline where it was scarcely possible to travel without bending two-double. Then along the level, and out to the slope-way, which is the main haulage of this mine.

The riding cars were ready. Officials had stopped hoisting coal for the sake of a man.

YES: Men come first above all things at the Drummond Mine! Arriving at the surface, I was then carried to the very excellent First Aid Room, where the equipment would do credit to a hospital.

The doctor came, and questioned the character of my injuries. Being a "First Aid enthusiast", and also holding a certificate as a "Nurse Attendant", I was able to correctly describe them.

After an examination of heart, lungs, and satisfying himself I was in a state to be moved, the doctor took me to the Aberdeen Hospital, distant about six miles.

Take it from me, that ride was not "a love-feast". The roads were slippery with snow, and with every lurch of the car I got "L", and all the rest of the alphabet. The "Inquisition" must have been a Sunday-school picnic compared to that ride.

In the Hospital

A pretty sight I must have been to the nurses who received me. During the winter I rarely shave. So with considerable beard, and black with coal-grime, I contrasted strongly with the dainty appearance of the nurses in their white uniforms.

After being placed on a cot, the nurses covered me with a sheet, and proceeded to disrobe me. It was a painful proceeding.

One of them swabbed my arm, then gave me a jab with the hypodermic. I enquired of her: "Did you use alcohol or ether on that swab?"

She looked rather surprised, then replied: "Alcohol". Said I: "I did not feel the needle, and thought perhaps you had used ether to avoid shock".

The other nurse spoke: "If you did not feel the needle, you are hurt rather badly". I think she was right.

They washed my face, body, and legs. I saw they wished to avoid me embarrassment by further cleansing, so I requested the wash cloth to try to make myself fit for bed.

It was a terrible job, but I managed to get off some of the grime, and was then dressed in a "pneumonia jacket, and hospital shirt".

The cot was wheeled to the X-ray department, where it was ascertained I had "three ribs fractured" but no other discernible bone injuries. Both shoulders were badly strained, the tissues being torn away from the bones in the left shoulder. Multiple lacerations added to my discomfort.

I spent a month at the Aberdeen Hospital. From the Superintendent to the youngest probationer I received every care and kindness. Were the world combed for a squad of women sincere in the fulfilling of their duties, a finer ensemble would be difficult to get together.

Incidently I discovered I had a host of friends. For several years I had contributed a column weekly to one of the local papers, giving Nature subjects, and other informing items. When the paper announced I had met with a mishap, books, papers, fruit, welcome ginger-ale, and visitors were aplenty.

Back in the Mine Again

It is over two years since I got buried alive. Some weakness remains in the injured shoulders, but it will gradually disperse. I have gone back to the mine again, to be once more among men who can be MEN in the fullest sense of being men.

But I have no intention of remaining in the mine for long. I have an appreciable acreage of land, implements, some stock, and look forward to being able to get a living from farming

And the next time I get buried, I hope I shall be past the stage where it will be worth keeping me longer above the sod.

What has happened is only an "industrial mishap" after all, but there is no desire for a repetition.

A TILLY FOSTER INCIDENT

By JOHN ROSCH

Westchester and Putnam Counties of New York are rich in mineral content. Many of the mines that were abandoned during the latter part of the last and the fore part of this century have never been worked out. With the opening of new fields in the west, with more advanced machinery and methods of working, and with nearby railroad facilities, competition could not be met. However, in my opinion, the above was not the reason for the abandonment of the Tilly Foster mine in 1897. It was the ever present danger in the strata or glacial drifts and of the greasy texture of the many masses of serpentine which kept sliding down into the shaft after every heavy blast, which at times resulted in serious injuries and death to the miners. In one instance 16 men met their death.

The Tilly Foster mine was originally worked by shaft and tunnels to a depth of 300 feet. The veins of iron ore ran north and south. The roofs of the various chambers were supported by huge columns (pillars) 5 to 6 feet in diameter which were of the finest ore. To work the mine, operations were started and continued as an open pit to the depth of 300 feet. At one time 300 miners were employed.

When the mine finally shut down, the shaft had reached the 600 foot level which level was the only one being worked when the mine was abandoned in 1897.

The original deeds or leases given by the Philipses Family during the period of the Revolution contained a clause "reserving all mines and minerals". This property was confiscated by the Commissioners of Forfiture and sold by them to Jacob Ellis on December 28th, 1781. Of this tract, 128 acres came into the possession of Mr. Tilly Foster on April 1st, 1830, after whom the mine was named; he died April 4th, 1842, at the age of 49.

The first to discover the ore was James Townsend, the owner of a forge at Boyd's Corners in the Town of Kent, in 1810. Until 1853, scarcely any attempt was made to develop the resources of the mine. Shortly after, a company was duly incorporated under the name of "Tilly Foster Iron Mines" with a capital of $5 0,000.

During the latter years of the last century, Tilly Foster Magnetic Iron Mine was a mecca that attracted mineralogists from near and far. No attempt is made in this paper to enumerate the various minerals found at the mine but chondrodite, classed by Dr. Geo. F. Kunz as a gem, a brilliant garnet-red monoclinic crystal, was a rare find usually embedded in a matrix of dolomite. Specimens of this kind always found ready exchange with other collectors or with Wm. Niven who was a dealer with a store on Broadway opposite 8th St., in New York City (he was originally located on 23rd St.).

Entombed For Five Hours

Three weeks before the final closing down of the Tilly Foster Iron Mine, I was caught like a rat in a trap on its 600 foot level. This incident sounded the death knell of the mine. Being of a venturesome nature in my younger days, I wanted to go down into the bowels of the mine.

Mr. Gilbert, the surface foreman, frequently cautioned me against this venture but finally with the permission of Mr. Cosgriff, the superintendent, who furnished me with a guide, I was permitted to go down. With a lamp on a scull cap, I climbed into the iron bucket, the guide standing on the handle above my head and clinging to the wire rope. Down went the bucket, slowly at first and then faster, until the 500 foot level was reached where at a signal it stopped and we got off at a tunnel that led into one of the mine's "caverns".

We crossed a heavy planking over a deep crevice, heard the rushing of water below but could not see it. Upon entering a chamber I dimly saw what my fanciful theory made out to be a large stalactite. Upon snapping my finger against it, expecting to hear the usual

metallic ring of a calcite stalactite, to my surprise my finger became embedded in the material which proved to be nothing but foam, the texture of Brewer's yeast. We then turned around, retraced our steps to the shaft, got in the bucket, signaled, and dropped down to the 600 foot level.

The 600 foot level is the lowest level of the mine. Here the main tunnel ran north and south with a narrow-gauge tramway which carried the ore from the far ends of the tunnel to the shaft. Through the vapor that prevailed, I could just about see the miners at work in the distance.

After leaving the shaft we turned south and entered an opening a few feet south from the shaft in the side of the main tunnel. This opening was about 10 feet high, same in width, and about the same in length. Here we stopped to watch three miners at work in a 20 foot high chamber. We were here but a very short time when we heard an approaching roar which I likened to the discharge of a hundred cannons of the largest calibre. My guide grabbed me by the arm and we ran with utmost speed to the tramway, the miners following. We had barely reached the tramway when huge rocks crashed down from the roof through the opening and wedged in the tramway. That blocked our exit to the shaft as the huge blocks entirely filled the opening from floor to roof. Naturally I feared the worst but was greatly relieved a few minutes later when miners on the other side of the barrier had ascertained that the shaft (the only exit to the surface) was safe and had so informed us through a small aperture of about a foot wide which they had made near the top of the fall. Soon miners on both sides of the cave-in got to work but it was about five hours (10:00 a.m. to 3:00 p.m.) before an opening large enough for us to crawl through could be made.

The cause of this sudden avalanche of rock and iron ore could be laid to a streak of serpentine in a strata of gneiss that carried the floors, roofs, and supporting pillars of the chambers above where we were in barely 15 minutes before the accident on the lowest level that had emtombed us for five hours.

Location of Mine

The Tilly Foster Iron Mine is in the small hamletof Tilly Foster, 1½ miles northwest of the village of Brewster, Putnam Co., N. Y.

In 1898 a corporation was formed and a large crusher erected at Tilly Foster with the intent to recover the ore in the discarded dumps, the accumuations of many years. I was in the employ of the company as official photographer and once a month my photographs showed the progress made.

The Tilly Foster had a greater importance and value greater than any other mine in the county by reason of the excellence of its ore, the wonderful combination of minerals found, and the nature of the geologic associations. The numerous and unusual deposits found in the mine were such that dealers in foreign countries always listed Tilly Foster minerals in their catalogs.

About Oct. 1, 1941, when I had visited Tilly Foster for the first time in many years, I failed to recognize the old mine which had entombed me for 5 hours.

An Outlet for Gem Cutters

The following letter was recently received from one of our subscribers, The Gabriel Williams Co., 17-23 W. 60th St., New York, N. Y.:

"Our specialty is the coloring of crystal quartz widely used in the gem trade and now being used extensively for other commercial purposes.

"It occurred to us that among your readers there are many amateur and professional lapidaries who would be interested in slitting, shaping and polishing this material into certain simple gem stones that we require. Anyone skilled in the art would find this profitable since we can supply a large and steady amount of business at a very fair market price. We, therefore, invite inquiries from any of your readers who are in position to do this kind of work."

RARE FOSSILS COLLECTED IN SOUTH DAKOTA AND COLORADO

After collecting the skeleton of a marine reptile, thirty feet long, in a South Dakota pasture near the town of Kennebec, the Field Museum Paleontological Expedition to the West returned to Chicago Sept. 10th. The members of the expedition were Bryan Patterson, assistant curator of paleontology who was leader of the party; James H. Quinn of the museum's staff; John Schmidt, Robert Schmidt, and Ellsworth Shaw, all of Homewood, Illinois, and Edwin C. Galbreath, of Ashmore, Illinois.

Work was conducted in Colorado as well as South Dakota. The Kennebec sea reptile, which lived during the Cretaceous period about one hundred million years ago when a great salt sea covered what now constitutes the middle western plains, was a distant relative of the lizards. A member of the group known collectively as Mosasaurs, it had a very large head, an exceedingly long tail, flippers used to paddle its way through the water, and large teeth. A notable feature was doubled-jointed jaws making it possible to achieve a wider gape for devouring the various other sea creatures upon which it preyed, according to Assistant Curator Patterson. The deposit from which it was excavated by Messrs. Quinn and Galbreath is known as the Pierre shale. Hitherto Field Museum of Natural History has had only a partial skeleton of this type of prehistoric animal, and the present specimen, nearly complete and much larger in proportions, will provide material for a much more effective exhibit. The mosasaur preyed upon various large fishes, invertebrates such as cuttle fish, and marine turtles which it probably devoured shell and all.

In Colorado, at an early stage of the expedition, which began its operations in June, specimens were obtained of one of the earliest large mammals—the Coryphodon, a creature about the size of a hippopotamus but in its special characteristics unlike any animal living today Previously there had been only three reasonably complete Coryphodon skeletons known. These animals, which have no modern relatives, lived in the early Eocene period, more than forty million years ago.

Less spectacular, but offering even greater possibilities scientifically are specimens of small insectivores and primates of the early Eocene epoch. To properly assess their scientific significance will require months of research, says Mr. Patterson, but it is expected that some of them will prove to be of species new to science, and some may have special value in the further study of the relationships of the tarsiers, lemurs, and other primitive members of the early monkey and man group of animals. Also collected were specimens of early relatives of the horse, rhinoceros and tapir, primitive rodents, and groups of animals of which no members exist in the modern world. The total collection of the expedition embraces more than 500 specimens.

IMPORTANT EXAMINATIONS REANNOUNCED FOR SCIENTISTS BY CIVIL SERVICE COMMISSION

Scientists have contributed much to the public welfare in peace time. Today they have a vital part in the Nation's defense efforts. The knowledge and technical ability which Chemists and Physicists possess are in urgent demand in both industry and the Government service in solving defense problems. Defense problems are problems of modern mechanical warfare methods.

In an effort to meet the increasing need for these scientifically trained men and women in the Federal Government, the Civil Service Commission has reannounced, with modified requirements, its examinations for Physicist, Chemical Engineer, and Explosives Chemist. The Commission is contemplating reannouncing other examinations with similar modifications. The salaries in each of these three fields range from $2,600 to $5,600 a year. For all, appropriate college study and experience are required.

Under the announcement the Physicist examination admit applicants for the assistant grade of positions ($2,600 a year) who may qualify on college teaching unaccompanied by research. There is an especial need for the Physicist who is a "gadgeteer"—one in the field of electronics and radio physics to work in laboratories in producing both mechanical and electronic equipment. Modern warfare calls for mechanical devices—so-called servo-mechanisms — and the people who have the famed Yankee ingenuity which will produce these devices.

In the new Chemical Engineer examination one may now substitute college teaching in chemical engineering or chemistry for part of the prescribed experience. There is a need for several types of chemical engineers, particularly those who have had experience in production work and who are capable of stepping into new industrial plants and taking complete charge of unit operations and unit processes—men who are accustomed to directing other men in plant procedures. Wanted also are chemical engineers who have had experience in plant design—especially those who have shown themselves to possess the ingenuity in industrial management methods which will be required in order to re-design old plants for new production problems under war-time conditions.

In the new Physicist and Chemical Engineer examinations, the recency requirements relative to experience have been modified. Although preference in certification will be given to those eligibles who acquired at least 1 year of their required educttion or experience within the 10 years immediately preceding the filing of their applications, those whose qualifying education or experience was gained previous to that 10-year period may be certified and appointed.

There is no "recency" clause in the new examination announced for Explosives Chemist, applicants' experience may have been gained at any time. Chemists are needed who have had experience in the handling, production, and investigative work in explosives chemistry, but any kind of experience wherein laboratory techniques or plant processes are employed that are very similar to those used in explosives will be considered qualifying experience.

In all these examinations the age limit has been raised to 60 years, for regular probational appointment. Provision is also made for the waiver of age and physical requirements for temporary positions connected with the National Defense program.

These examinations offer qualified Chemists and Physicists the opportunity to make their contribution to the service of the Government. Examination announcements and application forms may be obtained at any first- or second-class post office or from the Civil Service Commission in Washington, D. C. Applications may be filed until further public notice but qualified persons who are available for appointment are urged to file applications at once.

MANGANESE RESOURCES OF THE OLYMPIC PENINSULA, WASHINGTON

The manganese resources of the Olympic Peninsula, Washington, have been examined by geologists of the Geological Survey, United States Department of the Interior, as part of its investigation of domestic deposits of strategic minerals.

The Olympic Peninsula is an extremely rugged and heavily timbered area of about 5,000 square miles, in the northwestern part of the State of Washington. The tightly folded argillites, graywackes, schists, and quartzites in the center of the Peninsula are bordered on the north, east, and south by steeply dipping lava flows and tuff beds. Associated with these volcanic rocks are beds of reddish or chocolate-colored impure limestone and limy argillite, which are generally less than 50 feet thick, although in places they reach a maximum thickness of about 300 feet. These red beds, which are much squeezed and faulted, contain irregular lenses and pockets of manganese silicates and a few bodies of the manganese oxide hausmannite (Mn_3O_4).

The manganese silicate deposits are of low grade and are accompanied by jasper, which makes them hard to concentrate. Individual bodies generally contain less than 100 tons of rock that averages more than 20 percent of manganese, but a few bodies contain up to 15,000 tons. Hausmannite is the only commercial source of manganese yet developed on the Peninsula, and so far it has been produced only from the Crescent mine, which, during the years 1924-26, yielded 16,275 tons of ore, with an average manganese content of more than 51 percent. Another similar small body of hausmannite is now being mined at the Crescent by the Sunshine Mining Co.

The chief hope of future production seems to be in the discovery and development of other bodies of high-grade hausmannite rather than in attempts to mine the low-grade and erratically-distributed manganese silicates, but it is doubtful whether the Olympic Peninsula can yield 150,000 tons of rock containing more than 20 percent of manganese.

Analyses of 32 samples of red limestones and red argillites gave a maximum of 8.52 percent of MnO, and it is possible that large tonnages of the red rocks containing about 5 percent of MnO can be found.

California Journal of Mines and Geology

The Division of Mines, Department of Natural Resources, under the direction of Walter W. Bradley, State Mineralogist, announces the release of the April, 1941, issue of the *California Journal of Mines and Geology*, being Chapter 2 of State Mineralogist's Report XXXVII - 171 pages, illustrated by photos, cuts, and maps.

This chapter is devoted primarily to the Geologic Branch. It contains the usual "Current Notes", a resume of the "Geologic Progress of the California State Division of Mines, 1930 to 1940," an article on "California Earthquakes of the Mission Period, 1769-1838," and one on the "Occurrence of Scheelite in Idaho-Maryland Mines at Grass Valley," California.

The principal paper, of 100 pages, by John F. Partridge, Jr., is a report on the "Tungsten Resources of California," a most timely study of the State's resources in this strategic mineral. It discusses the economics of tungsten, mineralogy, geology of tungsten ores, ore dressing, and describes the California tungsten mines and deposits, including a bibliography.

Four special articles follow: "Dragline Dredging in Siskiyou County," "Marketing Talc, Pyrophyllite and Ground Soapstone" which gives the properties, occurrence, uses, markets, prices, and list of buyers of all grades; and short papers on "Manganese" and "Magnesite".

The output and value of "Salines" in California for 1940 and a directory of the producers is given under the heading Minerals and Statistics. The usual notes on Museum, Laboratory, and Library are included.

Price 60c postpaid, plus 2c sales tax to residents of California. All publications of the Division of Mines are for sale at its offices: San Francisco, Los Angeles, and Sacramento. In the Redding office they are available for reference only.

QUICKSILVER DEPOSITS OF THE OPALITE DISTRICT, MALHEUR COUNTY, OREGON, AND HUMBOLDT COUNTY, NEVADA

The Opalite quicksilver district, the center of which lies about 15 miles west of McDermitt, Nevada, has been examined by R. G. Yates, geologist of the Geological Survey, United States Department of the Interior. This work is part of the investigation of domestic deposits of strategic minerals being made by the Survey. McDermitt is 74 miles north of Winnemucca, Nevada, and the district, which is about 20 miles in diameter, lies partly in Malheur County, Oregon, and partly in Humboldt County, Nevada. The district includes the Opalite, Bretz, and Cordero mines and one undeveloped prospect.

The rocks of the district are horizontal lava flows of Miocene age overlain by lake beds of late Miocene age. They are cut by steep-dipping faults, and parts of the fault fissures were channels for ascending cinnabar-bearing solutions. The ore deposits are mainly lens-shaped masses of silicified lake-bed material called "opalite," but some ore occurs in unsilicified lake beds adjacent to the "opalite." All the ore bodies that have been found are within 100 feet of the surface. Siliceous ore has yielded an average of 5 pounds of quicksilver to the ton; nonsiliceous ore has yielded about 19 pounds to the ton.

From 1927, when production began, to the end of 1940, the district produced 22,174 76-pound flasks of quicksilver. Of this, the Opalite mine produced 12,124 flasks and the Bretz mine 10,019 flasks. Operations at these mines were discontinued in the spring of 1941, because the known ore bodies had been practically exhausted. The Cordero mine produced only 31 flasks prior to 1941, but extensive exploration has blocked out 15,000 tons of ore containing an average of 15 pounds of quicksilver to the ton, or about 3,000 flasks in all, and potential reserves of 50,000 to 100,000 tons of ore that will average about 5 pounds to the ton. Further exploration might reveal even greater quantities of potential ore. The property, therefore, can almost certainly produce at least 3,000 flasks of quicksilver, and at present prices it might produce several times that much.

Geologic conditions in the district warrant the hope that new ore bodies would be discovered by more extensive prospecting. Three areas are particularly promising. One lies between the old pits and the 1940 pit of the Bretz mine; another includes the silicified rocks a quarter of a mile southeast of the old Bretz mine, and still another lies 1½ miles south of the Opalite mine. All the tuffs and sedimentary rocks adjacent to the silicified rocks at the Disaster Peak prospect seem to be possible host rocks for cinnabar.

Field Fables of "Rocky" Moore

Me an' Snaik-hide Slokum has got the biggest peece of peterfied wood in the wurld staked out. It is tweinty-five feet acrost an' we aim to kut an' polish it. It lays on the ocean side uv Beeler Bu.e an' we air gonna roll it down tew the ocean so the rip tide kin help us float it to a lokul amusemint peer. Coars sum lunk-hed is gonna ast whut we want tev git it to a amusemint peer fer. Well, we got a deel with the folks thet own the equipmint there to use there Ferris wheel to kut it an' the merry-go-round fer a polishin' table. We air gonna charge fokes 10c to kum in an' watch us. Big Boot Bertha Beeler wil be there as a added attrakshun. She's got the purtiest petrified limbs yew ever saw. One is deep red with a brown not in it. Yew kin see thim too fer an extra 5c. Yore's trooly—"Ol' Rocky" AWTHUR!

MAY BE WORLD'S OLDEST LAPIDARY?

Mrs. Reed considers it great fun to cut and polish minerals. Here she is at work on a new batch of specimens.

The cutting and polishing of semi-precious stones is a most fascinating hobby and collectors by the thousands, in all parts of the world, are doing it. We have seen many stones cut by amateurs, we have even examined their equipment which are set up in cellars, sheds, garages, attics, or in spare rooms of their homes. We know that collectors of all ages, some even as young as 10 years, are cutting and polishing minerals.

It is a matter of much gratification to record that the oldest person known to us who is cutting and polishing minerals is Mrs. Charlotte M. Reed, of 440 N. Rosemont Ave., Los Angeles, Calif.

Mrs. Reed was born in Toronto, Ont., Canada, in 1850—she is thus 91 years old. In Jan. 1939, the rock bug bit her and since then she has been cutting and polishing minerals regularly and considers it great fun. She has had one specimen of polished chapenite from Bicycle Lake, Calif., on display at the recent Barstow Mineral Show that won her honorable mention. This stone was lapped until no flaws were discernible through a 10 power glass.

Mrs. Charlotte M. Reed takes time out to talk about her fascinating hobby.

If a lady 91 years old can cut and polish minerals so can a youngster of 40 or 50. We hope that this will be an inspiration to all.

Mrs. Reed is the mother of Ralph R. Reed (same address) who is a member of the Rocks and Minerals Association.

FOSSIL PIG SKELETONS IN MUSEUM EXHIBIT

Pigs and their relatives of thirty million years ago are the subject of a new exhibit in the hall of paleontology at Field Museum of Natural History, Chicago, Ill. Included are the skeletons of four families of prehistoric animals, three of which were pig-like in their structure and apparent habits, while a fourth was similar in general proportions but quite unlike the others in structure. The families included are: the native American pigs or peccaries; a larger pig-like family known as the Achaeonodonts or short-faced pigs; a still larger and more imposing line of animals known as the Entelodonts, some members of which attained the size of a bison and had a head a yard long; and a family of hoofed mammals, found only in North America, known as the Oreodonts. Most of the specimens were collected in the Bad Lands and nearby regions of South Dakota, Kansas, and Nebraska.

"V" FOR VICTORY

A. C. HAWKINS

A great many people are familiar with the little "fairy-stone" crosses of the tourist trade, most of which come from Virginia. The mineral staurolite, which forms twins composed of crystals crossing at very nearly a right angle, is known even more commonly in twins of the type of the St. Andrew's cross, having the shape of the letter x, in which the component crystals intersect each other at a 60-degree angle. One of these is shown in the illustration. This particular one is 3 inches high and 2 inches wide, so that it is highly desirable for the mineral collection, although too cumbrous for tourists.

A rather uncommon modification of the latter form is the V-shaped twin, in which the upper or lower half of the cross develops without any attempt to form the other part of it. Two such twins are shown in the illustration. On the matrix specimen in the center of the picture, we see two such V-shaped twins, protruding from a small slab of mica schist.

It is also possible for staurolite, by repeating the 60-degree twinning, to form a triangular cyclic twin, represented by the crystals in the upper part of the large X-twin shown in the illustration. This, so far as the writer knows, is a new observation on the twinning of this mineral.

All of these crystals have a core of fresh brown staurolite which is harder than steel, although they have a coating of micaceous material on the exterior, caused by hydrothermal alteration ages ago. All of these crystals were found close to Route 58 at Galax, in southwestern Virginia.

V-shaped Twins of Staurolite from Galax, Va.

Collector's Kinks

A HANDY TOOL

One of the handiest tools we ever saw for extracting small crystals or broken fragments out of narrow crevices is a small tire iron used by Dr. L. Prescott Brown, of Albany, N. Y. The iron is about 6 inches long with a chisel cutting edge at each end set at right angles to the main bar. Not only can one hammer on each chisel without the risk of hitting his hand if he wants to break off a crystal, or use a chisel in scraping out fragments from crevices, but the tool is so easy to manipulate and is such a convenient article that every collector should have one.

New England Notes

Conducted by Rudolf C. B. Bartsch

36 Harrison St., Brookline, Mass.

Surrey, N. H. Mine Ledge. This locality is famous for its fine hematite in the so-called "Kidney ore" type. The nodules run from micro to more than one inch thick. The matrix is quartz which is badly shattered. These cracks and cavities are filled with fine kidney ore hematite in varying sizes depending on the width of the crack. Much of this hematite has an added beauty due to a covering of micro crystals of goethite. This produces a beautiful velvety appearance. Most of the material is more or less stained with red hematite and some limonite. The red hematite is easily removed with soap and water and when dry a few rubs with a clean chamois skin will restore the original luster. A clean shoe brush will also do a good job. However do not brush or rub the specimens coated with goethite as this will loosen many of the small crystals and the velvety ppearance will be gone. Some turgite may also be found. This mineral looks like limonite but may be distinguished by its streak which is red while the streak of limonite is yellowish brown. This mineral is a hydrohematite, intermediate between hematite and limonite. The locality is easily reached from Keene, N. H., on the Walpole Hill Road, about midway of the dirt section. The material is abundant on either side of the road.

Chester, Vt. The talc mine in this town has again stepped into the limelight. This fall many fine specimens with very large pyrite cubes have been secured by a few lucky collectors who had the courage to go down into the pit and dig into the debris that came down with the rock fall earlier in the season. Cubes of ¾ inch size were quite plentiful and the largest found was better than 1½ inches across exposed face. The larger cubes were found in the prochlorite. All the edges were frayed, due to pressure, and along the "contact" face many of the crystals were flattened and otherwise distorted. Smaller cubes with more perfections were quite plentiful in the talc masses. The other minerals found at this locality are still plentiful. The magnetite crystals observed were quite small.

Auburn, Me. Mt. Apatite. Much has been written regarding the excellent minerals which have been found at this famous locality and a visit to the numerous openings and dumps is apt to be very disappointing. The surface has been gone over so many times that little if anything can be seen and the average collector goes away believing that nothing can be found. Such, however, is not the case. A little earnest digging with shovel or hoe will most likely bring results. As evidence we have found several fine specimens with so-called "ball" lepidolite. The lepidolite occurs in masses with curved plates of fine color and brilliancy. Many fine well formed single crystals of lepidolite in quartz and feldspar were also secured, with diameters up to one inch. Sections of crystals of various thicknesses may be found with diameters up to 1¼ inches. One single crystal, 1½ x 2 inches and 1¼ inches long, was found. An unusual apatite crystal of a greenish-white color, opaque, in quartz and feldspar, was also taken out of the dump. This crystal is nearly round due to numerous faces about 1¼ inches, 1½ inches across and has a flat termination. Several fine specimens of damourite were also found. This is an alteration after tourmaline. One particularly fine piece had a fine colored crystal of lepidolite about ¾ inch across with six, nearly uniform, sides and also a fine tourmaline crystal about 2 inches long, ½ inch across the top, tapering to a point, six-sided, altered

(Continued on page 29)

Collectors' Tales

BLACKSNAKE MAN

While on a prospecting trip in one of the backwoods counties of West Virginia, we were forced to put up for the night in a small village in a mountain county near a small river. While waiting for the call for supper, some of our party decided to visit the country store, thinking maybe we would find the "Burnside Stove" and the proverbial "cracker barrel." We did, and joined in the general discussions. It wasn't long before we got around to stories of fishing and hunting. We made a remark that fishing with a "gig" would be a new experience for us and some fellow on the outside of the circle about us said, "We're goin' tonight. Tode and Clet will pick you all up."

We felt complimented, for it meant that they had looked us over and were accepting us. In past experiences we had learned to talk their language.

After it was good 'n dark Tode and Clet and another young fellow known as Chub 'donepicked us up' and we were on our way to "where the river runs thin". The advance guard had the torches "coal oiled" ready for the match. One who seemed to be an old timer at this gigging business, and whom we had not met at the store, looked us over saying, "them overhauls look mighty new to gig in". The snuff box was passed around and with a few directions to lookouts, we waded into the river. We asked why all this whispering, posting lookouts, etc. and Clet answered by saying, "It's agin the law to gig".

Now you can imagine how we felt, dodging water snakes, expecting to step into a deep hole, listening for the low whistle of a night bird, the signal agreed on if the sheriff hove in sight. The torches lit up the whole expanse of the river and we asked Tode, "Can't the sheriff see what is going on? What can we do if he comes to investigate except give ourselves up?"

"Oh," he answered, "the torch bearers drown the lights and we take to the mountains" and the question was settled.

Well, we were sure on a gigging party and I don't mean maybe. After missing a few gigs, we were successful in spearing a whale of a fish. We soon forgot the sheriff and the deep holes but never the snakes. They seemed more plentiful than fish. Along about midnight the leader called a round-up and we waded out to change to dry clothes and divide the fish. Chub was standing near us while changing his clothes and we noticed something black lying across his chest and arm. On closer examination we saw that it was a snake. We asked him about this terrible thing, and he said, "My mother was frightened by a black snake about six months before I was born. She throwed her right arm across her chest and left arm and then she fainted. When I was born this snake was marked on me just where she put her arm on her own body." We asked him if he would allow my friend and I to examine this mark in the daylight and he agreed readily enough.

The snake was black, about an inch and a half wide and an inch thick, tapering from the head to the inch and a half mid-section and then tapering off to a pencil size tail. The head was at the inside bend of the left elbow, extending up the arm, across the chest and down to the right hip bone. Chub said it peels off the black skin twice a year and stays pink for a while and then starts turning black again.

I hardly know how to end this story. Anyhow, if we had not gone gigging we might never have met Chub and we would not have seen his black snake. It is hard to tell whether this is a snake story or a fish story. However, I will notarize this article as the truth and I can produce Chub and his snake.

—Walter S. Amos.

Clubs Affiliated With the Rocks and Minerals Association

ARIZONA

Mineralogical Society of Arizona
Geo. G. McKhann, Sec.. 909 E. Willetta Street, Phoenix.
Meets at the Arizona Museum in Phoenix on the 1st and 3rd Thursday of each month.

CALIFORNIA

East Bay Mineral Society
Miss Marjory Welch, Sec., 3268 Central Avenue, Alameda.
Meets on the 1st and 3rd Thursdays of each month (except July and August), at 8:00 p.m., in the Lincoln School Auditorium, 11th and Jackson Sts., Oakland.

Northern California Mineral Society
A. L. Rogers, Sec., 137½ Joost Ave., San Francisco.
Meets on the 3rd Wednesday of the month at the Public Library in San Francisco.

Southwest Mineralogists
Mrs. Pearle Arnold, Cor. Sec., 2132 W. 76th St., Los Angeles.
Meets every Friday at 8:00 p.m. at Manchester Playground, 88th and Hoover Sts., Los Angeles.

COLORADO

Canon City Geology Club
F. C. Kessler, Sec., 1020 Macon Ave., Canon City.
Meets on the 1st and 2nd Saturdays of each month at 9:00 a.m. in the High School Building Canon City.

Colorado Springs Mineralogical Society
Lynn M. Hopple, Sec.-Treas., Motor Route 2, Colorado Springs.
Meets usually at the Lennox House, Colorado College Campus, Colorado Springs, on the 2nd Monday, of each month at 7:30 p.m.

CONNECTICUT

Bridgeport Mineral Club
Mrs. Julia Walker, Sec., 55 Eaton Street, Bridgeport.
Meets in the Bridgeport Public Library on the 3rd Monday of the month.

Long Hill Mineral Club
Eugene F. Robinson, Sec., R. F. D. No. 4, Box 237, Bridgeport.
Meets on the 4th Tuesday of each month at 8:00 p.m., in the Hawley Memorial Library, Long Hill.

Mineralogical Club of Hartford
Mrs. L. T. Goodrich, Sec., 51 Jerome Avenue, Bloomfield.
Meets the 2nd Wednesdays of each month, at 8:00 p.m., at 249 High St., Hartford.

New Haven Mineral Club
Mrs. Lillian M. Otersen, Sec., 16 Grove Place, West Haven.
Meets on the 2nd Monday of the month at the Y. W. C. A. on Howe St., New Haven.

IDAHO—OREGON

Snake River Gem Club
Margaret L. Hearn, Sec., Payette, Idaho.
Meets alternately in Payette and Ontario, Oregon, (two small cities on the Snake River) on the 3rd Tuesday of every month.

ILLINOIS

Junior Mineral League
William Dacus, Sec., Morgan Park Junior College, 2153 W. 111th St., Chicago.

MAINE

Maine Mineralogical and Geological Society
Miss Jessie L. Beach, Sec., 6 Allen Avenue, Portland.
Meets last Friday of the month at 8 p.m., at the Northeastern Business College, 97 Danforth Street, Portland.

MARYLAND

Natural History Society of Maryland
2103 N. Bolton Street, Baltimore.
Office hours, Tuesdays and Fridays, 10:00 a.m. to 5:00 p.m.

MASSACHUSETTS

Connecticut Valley Mineral Club
Leo D. Otis, Sec., 12 Clark St., Westfield, Mass.
Meets on the 1st Tuesday of each month at 8 p. m. at various institutions in the Connecticut Valley.

MISSOURI

National Geologist Club
Mrs. D. P. Stockwell, Pres., Mt. Olympus, Kimmswick.

NEVADA

Reno Rocks and Minerals Study Club
Mrs. Rader L. Thompson, Sec., Box 349, R2, Reno.
Meets on the 1st Wednesday of each month, at 7:30 p.m., at the Mackay School of Mines, Reno.

Western Nevada Mineral Society
A. Cornely, Sec.-Treas., P. O. Box 21764, Reno.

NEW JERSEY

Newark Mineralogical Society
William E. Simpson, Sec. 308 Grove Street, Montclair.
Meets on the 2nd Sunday of the month at 3 p.m. at Junior Hall, corner Orange and North 6th Streets, Newark.

New Jersey Mineralogical Society
O. B. J. Fraser, Sec.-Treas., 27 Stoneleigh Park, Westfield.
Meets on the 1st Tuesday of the month at 8 p.m. at the Plainfield Public Library.

NEW MEXICO

New Mexico Mineral Society
R. M. Burnet, Sec.-Treas., Carlsbad.
Society of Archaeology, History and Art
Carlsbad.

NEW YORK

Chislers, The
Miss Evelyn Waite, Sponsor, 242 Scarsdale Road, Crestwood, Tuckahoe.
Queens Mineral Society
Mrs. Edward J. Marcin, Sec., 46-30—190th Street, Flushing.
Meets on the 2nd Thursday of the month at 8 p.m. at 289 Etna Street, Brooklyn.

OKLAHOMA

Oklahoma Society of Earth Sciences
W. P. Smiley, Sec.Treas., 229 W. Jefferson Street, Mangum.
Meets on the 2nd Tuesday of each month, at 7:30 p.m., at the Historical Museum, Mangum.

PENNSYLVANIA

Thomas Rock and Mineral Club
Mrs. W. Hersey Thomas, Pres., 145 East Gorgas Lane, Mt. Airy, Philadelphia.
Meets on the 3rd Friday of each month, at 8:00 p.m., at the home of its president, Mrs. Thomas.

VERMONT

Mineralogical Society of Springfield
Victor T. Johnson, Sec., 11 Elm Terrace, Springfield.
Meets on the 3rd Wednesday of each month at 8:00 p.m. at the homes of members.

WASHINGTON

Gem Collectors Club
Mrs. Lloyd L. Roberson, Sec., 522 North 70th Street, Seattle.
Meets on the 1st and 3rd Tuesday of each month (except during the summer) at 8:00 p.m., at the Y. M. C. A.
Washington Agate and Mineral Society
Monroe Burnett, Sec., 802 S. Central St., Olympia.
Meets on the 1st Monday of the month, at 7:30 p.m. at the home of some member.

ABOUT HOBBIES

By B. J. FRITZ

No doubt each man a hobby needs,
It may be golf, odd books, or weeds,
A lathe; a buzz saw; photographs;
Or searching for quaint epitaphs.

One man may have a flair for mice,
Another skates on wheels or ice,
Or gathers up old Grandpas' clocks
But I'll take mine collecting rocks.

Out in the hills, man that's the life,
Far from the city's noise and strife.
Where flowers bloom and breezes blow
From hill tops high, look down below.

Perhaps a river's glinting glow,
Above, the mountains, topped with snow.
Down thru the canyon flows a creek,
Along its banks the rocks lie thick.

There's jasper, agates gray and blue
And stones of every shape and hue.
Perhaps a stump of solid stone
I find where once a tree has grown.

Some fifteen millon years ago,
(According to the men who know.)
Here stately palms and redwoods grew
Great sycamores and cypress too.

Between the lakes from shore to shore
Once roamed the mighty dinosaur,
Then all was peaceful and serene
No humans had profaned the scene.

Methinks 'twould been a better spot
If beasts had stayed and men had not.
So, if perchance, when time's no more,
We fail to find that golden shore.

No harp: No crown for you and me
To wear thru all eternity,
Perhaps we'll be allowed to roam
The rock bound hills 'neath heaven's dome.

And just hunt rocks and never stop
To hie ourselves to desk or shop.
No need to stop for food or drink,
Say, that would be some heaven, I think.

EDITOR'S NOTE: We do not give much space to poetry but the above, from an old subscriber, we thought may tickle the fancy of some of our western rock hounds—for this was written out in Seattle, Wash.

Club and Society Notes

New York Mineralogical Club

American Museum of Natural History, New York, N. Y., Wed., Nov. 19, 1941.

Called to order at 8:15 P.M. Attendance: 51.

Membership Committee: Presented approved applications of:

Mr. Stanley A. Gage
Mr. J. Fred Poestkoke
Mr. George E. Hanze
Mr. Jacob M. Eberhardt
Mr. Charles Diegnan
Mr. E. L. Sampter

who were proposed to the club as a group and duly elected.

Excursion Committee: Report of fall excursion to the Strickland and Schoonmaker quarries near Portland, Conn.

Attendance: 17

Minerals collected:

Bertrandite—in minute striated lath shaped crystals.
Fluorite—minute purple crystals, some showing combination of cube, octahedron and dodecahedron.
Pyrite—bright ⅛" cubes with fluorite and Bertrandite.
Apatite—minute greyish white prisms associated with the foregoing. Also tiny gemmy blue prisms.
Manganapatite—large dark green masses.
Calcite—small nail head crystals.
Rubellite—deeply etched, more or less massive with a colorless outer zone (achroite).
Tourmaline—small crystals, various shades of green and black.
Spodumene—massive pinkish or white, some showing a strong orange phosphorescence.
Columbite—tiny tarnished crystals.
Beryl—rough greenish crystals, also pale pink (caesium beryl?)
Lepidolite—masses of lilac colored scales.
Cleavelandite—large lamellar white or bluish white masses.

Education Committee: Dr. Pough asked for a show of hands on the number of people who would attend the Saturday afternoon classes to be given at the Museum this winter. 16 responded.

Mr. Trainer then introduced the speaker of the evening, Dr. J. F. Schairer of the Geophysical Laboratory of the Carnegie Institution of Washington, whose talk was entitled "The Relations between Olivines, Pyroxenes and Melilites in Igneous Rocks".

The importance of these groups of minerals in the early stages of crystallization of igneous rocks was emphasized. The general features of the minerals of the igneous rocks were reviewed including size of crystals, zoning of crystals, sequence of crystallization, presence or absence of phenocrysts, flow structures, etc. Gravity separation of crystals was pointed out. Olivine concentrates by sinking of crystals at the bottom of thick sills like the Palisades diabase; leucite concentrates by floating of crystals as in certain leucite—rocks of the Highwood Mts., Montana.

The studies at the Geophysical Laboratory on the melting relations of silicates were described. Dr. Schairer discussed in detail by means of phase equilibrium diagrams the chemical and melting relationships of the molecules of the olivines, pyroxenes and melilites. All of these show extensive solid solutions. Many binary and ternary diagrams were explained and by means of a tetrahedral model, the complex relations between the lime-iron olivines, the $CaSiO_3$ - $FeSiO_3$ pyroxenes and pyroxenoids and the gehlenite-iron akermanite melilites in the quaternary system CaO-FeO-Al_2O_3-SiO_2 were shown.

The meeting was adjourned at 10:10 P.M. after a brief discussion period and a rising vote of thanks to Dr. Schairer.

Queens Mineral Society

In the early part of November, 1941, the Society secured new and larger quarters located at 8501 118th St., Richmond Hill, L. I., N. Y. The November meeting was held in the new club room. The speakers at this meeting were Mr. Edward Marcin who spoke on the derivation of the names and the differentiation of the various zeolites and Mr. Curt Segeler who covered the water softening properties of the zeolites.

At the December meeting, the officers and members discussed the program for the annual dinner that is to be held in February. The business part of the meeting was shortened to allow the guest speaker, Mr. E. A. Maynard, to present his intensely interesting subject—Rambling through the West. Mr. Maynard's talk was illustrated with colored slides which showed many beautiful views and scenes of areas visited by him on his recent trip to the West Coast. Mr. Maynard displayed many of the specimens collected on his trip, some of which were of exceptional rareness and beauty.

The President of the Society, Mr. A. H. Jones, who has been on the sick list since September, attended the December meeting but did not preside—at the request of Mr. Jones, the Vice-President, Mr. Hanifin, presided.

New Jersey Mineralogical Society

A regular meeting of the Society will be held on Tues., Jan. 6th, 1942, at 8:00 p.m., in the Plainfield Public Library, Plainfield, N. J. The program will cover an illustrated talk on fluorescence and fluorescent minerals by Brig. Gen. Julian S. Hatcher, of Aberdeen Proving Grounds, Md. This is a much looked forward to meeting and it is promised that Gen. Hatcher will present some new and most interesting facts on the subject of fluorescence.

On Sun., Jan. 18, 1942, the Society will hold a special field trip to the Newark Museum, Newark, N. J., where an excellent mineral display will be examined. Time—2:00 p.m. at the Museum.

With Our Dealers

W. Scott Lewis, 2500 N. Beachwood Dr., Hollywood, Calif., recently received samples of a new find of aurichalcite from Utah. The specimens are unusually attractive; the bluish-green aurichalcite coats small vugs and crevices of a brownish limonite making a most pleasing combination of colors. We hope Mr. Lewis has enough material to go around as the specimens will prove very popular if placed on the market.

Wyoming Minerals, Box 266, Laramie, Wyo., are distributing very attractive calendars for 1942 among their large group of satisfied customers. Business is very good, they report. Incidently they have obtained samples of a beautiful moss agate that was recently found in their state. Are you on their list?

V. D. Hill, Route 7-C, Salem, Ore., has recently released a new catalog (Price List No. 16). This is an attractive 32 page price list on gemstones, crystals, minerals, polished specimens, fluorescent minerals, fluorescent lamps, books, cutting material, jewelry, etc. If your name is on his list you will receive a copy of the price list—otherwise send in your name and address.

Ward's Natural Science Bulletin, October, 1941, issue (20 pp., 16 illus.) has 6 pages and 3 illus. devoted to interesting minerals—all recent additions to their huge stock. Issued by Ward's Natural Science Est., Inc., 298 Goodman St., N., Rochester, N. Y.

New England Notes

(Continued from page 24)

to damourite. The color of this crystal was pale pinkish. Both were in white quartz making a very attractive piece.

Portland, Conn. Occasional visits to the Schoonmaker mine are usually well worth while. Recently a large amount of quartz containing very good tourmaline crystals has been on the dumps. The crystals are in masses extending in all directions into the quartz. The color is unusual, being an epidote green. All are opaque and most have a flat termination. These masses had best be worked on at home. A little care and patience is needed to remove the quartz leaving the crystals exposed.

And now a few words to collectors that have not collected in the New England states. I have received many letters asking about tourmaline and beryl crystals. These crystals occur quite plentifully in New England, particularly the beryl and black tourmaline. The colored tourmalines are not as plentiful. However, the pink tourmaline is quite common at times at the Black Mt., Rumford, Me., locality. But the point that I am most desirous of putting across is that well terminated specimens of any of them are rare. Having collected several hundred beryl crystals and so far securing only two with fine terminations, I feel that this will give some idea of their scarcity. I have found but one well terminated colored tourmaline crystal and have had several black ones. So don't be disappointed if in collecting or exchanging you don't secure the nearly perfect ones because we do not find them ourselves.

BIBLIOGAPHICAL NOTES

Woodworking Projects and Upholstering: By William T. Baxter, M.A., and Paul Gordon Lackey, M. A.

Although this book may seem out of place in a mineralogical magazine yet what collector is there who has not at one time or another been forced to make a cabinet to house his mineral collection? And these cabinets almost invariably are made of wood. This very fine book, therefore, should be in the library of every mineral collector and especially so when it is brought out that the senior author, Mr. Baxter, is not only a mineral collector of note but is also the author of the famous book *Jewelry, Gem Cutting and Metalcraft*; furthermore, Mr. Baxter is also a member of the Rocks and Minerals Association.

Woodworking Projects and Upholstering is a most interesting and very timely publication. It describes and illustrates various tools used such as planes, handsaws, boring tools, etc. It has chapters devoted to glue and gluing, coated abrasives, fasteners, wood finishing, wood lathes, power saws, projects and principles of upholstering.

The book contains 251 pp., 233 illus., and is priced at $2.50.

Published by D. Van Nostrand Co., Inc., 250 4th Ave., New York, N. Y.

Evidences of Early Occupation in Sandia Cave, New Mexico, and Other Sites in the Sandia-Manzano Region: By Frank G. Hibben, with an appendix on **Correlation of the Deposits of Sandia Cave, New Mexico, with the Glacial Chronology:** By Kirk Bryan.

An interesting report covering investigations of early man in the New World. 64 pp., 15 pls., 9 figs.

Published by the Smithsonian Institution, Washington, D. C., Oct. 15, 1941 (Publication 3636).

The Mining Groups of the Yilgarn Goldfield, South of the Great Eastern Railway. Part 1. From Southern Cross Southwards to Marvel Loch, by R. S. Matheson and R. A. Hobson. 165 pp., 10 figs., 24 maps (in separate atlas).

In this publication will be found details of the geology and ore bodies of most of the mines, both large and small, which were being worked in 1935 and 1936.

Issued by the Geological Survey of Western Australia, Perth, Western Australia, as Bull. #98 (1940).

Annual Progress Report of the Geological Survey of Western Australia for the year 1939. 58 pp., 3 pls., (1940).

Issued by the Geological Survey of Western Australia, Perth, Western Australia.

Nevada's Common Minerals: By Vincent P. Gianella.

Although this bulletin has been issued primarily to aid those who have had little or no previous training in the subject of mineralogy but are interested in the common minerals, it has so many valuable references to the mineral localities of the State that we are glad to recommend it to collectors.

The bulletin is divided into four parts as follows:

Part 1. Introduction; selected bibliography; origin, occurrence, and association of minerals; where to look for minerals; collection and care of mineral specimens; disposition of specimens.

Part 2. General characteristics of minerals.

Part 3. The determination of Nevada's common minerals.

Part 4. Preliminary list of Nevada's minerals.

Issued Sept. 15, 1941, by the University of Nevada (Reno, Nevada) as Geology and Mining Series No. 36, 110 pp., 6 figs., price 50c.

Mrs. Harold C. Mayorger

It is with much sorrow that we have to announce the death of Mrs. Harold C. Mayorger, of Brooklyn, N. Y., the only daughter of Mr. and Mrs. John A. Grenzig, also of Brooklyn. Mrs. Mayorger passed away about 4:00 a.m. Sunday, Dec. 7, 1941, and was buried Wed., Dec. 10, in the Greenwood Cemetery.

Mrs. Mayorger (Helena Grenzig) was very popular and had a host of friends, especially among mineral collectors, and many of these friends sent floral offerings and were even present at the funeral. The services were held at the Church of the Transfiguration.

Mrs. Mayorger was 51 years old. She is survived by her husband, son Donald, two brothers (August and William), and her parents.